

EConsole v03.05 for Windows 98

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Short description

The Econsole (ethernet console) program allows configuration of network devices manufactured by AFAR Communications, as well as VIP radios sold by Wi-LAN Inc. These devices can be set up from a serial RS-232 console port, from a personal computer with the ECON program, or – once they have a valid IP configuration – over a TELNET connection.

Each network device allows up to three ECON or TELNET connections in addition to the serial console port.

System requirements

- Win95, Win98, Windows ME, WinNT, Win2K
- NetBIOS installed
- WinPCap installed

Note: With regard to Windows NT platform, the code has been tested with versions 4.0 and Windows 2000

Installation for Windows

In order to install the WinPCap library, if not already installed, just click on the WinPCap.exe. Support and updates for this library can be found at <http://netgroup-serv.polito.it/winpcap/>. It is strongly suggested to uninstall older versions of the library and reboot the machine before installing the new one. NetBIOS is a software component that comes by default with all Windows system, so you don't have to install it. To start the Econsole, simply open a MS-DOS console and type *econ*. For available command line arguments, please read the the "*input arguments*" section.

Included files

- *win_readme98.doc* The file that you are reading
- *econ98.exe* The EConsole client
- *WinPCap.exe* The Windows installer for the WinPCap library
- *input_script.txt* A sample input script file, that contains a list of radio commands.

Input arguments

You can provide the following arguments in the command line, even though none of them are required:

Input file

There are two sources for the input commands: the keyboard, or a text file. The second option is useful when you are running the same set of commands periodically, so you want to avoid retyping them every time you want to execute them. If there is an input file in the command line, then the keyboard will be deactivated and only the function keys will be available. If the specified file cannot be found, the application will be terminated.

example:

C: > econ98 -i input.txt

Sample input file:

help

this is a comment - note that the character # must appear as the first character

time

date

the following is a local command

. delay 10

time

. delay 1.5

version

logout

As you probably noticed from the above file, all the lines are interpreted as radio command, unless:

- a) They start with the character # which implies a comment
- b) They start with the character . which implies a local command. Currently there is only one local command, namely the *delay < time in secs >*

Important note: All the input scripts should end with the *logout* command. Since all the commands are terminated with the new line character, there must be one command per line and after the final *logout* command you must have an extra empty line.

Output file

When you want to capture the output of a session into a text file, you can pass the filename as an argument. If the file does not exist it will be created, otherwise it will be overwritten.

example:

>econ98 -o output.txt

Radio MAC address

If you are interested in a specific radio, you can pass its MAC address and let the client ignore any response from other radios. That's very handy when you are always getting connected to the same radio and you want to avoid the manual selection of a preferred one. Very useful also in case you are using scripts for fully automated procedures.

example:

```
>econ98 -r 00:78:24:22:BA:4F
```

Radio Serial Number

The same functionality as above (see Radio MAC address) can be achieved by providing the radio serial number, instead of the radio physical address. Note that you should not include the initial UC characters of the serial number (i.e. type *11078* instead of *UC11078*)

example:

```
>econ98 -r 11787
```

Local Physical Address

Even though econsole identifies the PC local physical address automatically, there are some cases in which the user wants to specify the local address on his/her own. These cases usually arise when there are multiple NIC cards with the same names under WinNT operating system. In such case, the econ might pick up the wrong MAC address, and therefore the user should supply manually the physical address as a command line argument.

example:

```
>econ98 -m 00:78:24:22:BA:4F
```

Inverse Screen Colors

You can change the default settings (white texture on black background) by providing the -b option, which will change the settings to black texture on white background.

example:

```
>econ98 -b
```

Change the console window size

Currently you can specify two values, either 25 or 50. These values indicate the number of lines of the MS-DOS window.

example:

```
>econ98 -l 50
```

Help

Function keys, including F1, are activated after you get connected to a radio. If you want to get help from the command line, you can use the -h argument.

example:

>econ98 -h

Command Syntax

econ <argument list>

argument list = *argument list* | *argument* | {}

argument = -o *outputfile* | -i *inputfile* | -r *MAC address*

Examples

Let's say you want to read a list of commands from the text file called in.txt, and capture the output to a text file called out.txt. You are also interested only in a specific radio with MAC address equal to 00:78:24:22:BA:4F. In that case, you will start the EConsole with the following arguments:

>econ98 -i in.txt -o out.txt -r 00:78:24:22:BA:4F or

>econ98 -o out.txt -i in.txt -r 00:78:24:22:BA:4F or

>econ98 -o out.txt -r 00:78:24:22:BA:4F -i in.txt

As you noticed, arguments' order is indifferent.

>econ98 -o out.txt -r 00:78:24:22:BA:4F -i in.txt

If you are reading from the keyboard, and you are simply interested in capturing the output of the session, use the following syntax:

>econ98 -o out.txt

Since no input file was specified, it is assumed that the keyboard will be used for input, and ALL radios will participate in the discovery process.

Function Keys

Currently there are 6 different function keys.

- F1 - Online help - gives a short description of the other function keys and the input arguments
- F2 - Active/deactivate diagnostic messages. Initially diagnostic messages are not shown, therefore if you want to see them you should press F2. Diagnostic messages include warnings, and retransmission info in order to get an idea of the connection's speed/integrity. Error messages are always shown.
- F3 - Terminates the current session and closes the application.

- F4 - Terminates the current session, but afterwards you can select another radio. You can use this utility when you are "scanning" your radios one by one. Note that the radio list remains the same with the initial one. There is no additional discovery phase every time you select a new radio.
- F5 - Reverse/Restore screen settings. Initially the screen displays white letters on black background, but you can reverse it to black letters on a white background.
- F6 - Increases the console window buffer. Practically this introduces a side bar which enables user to scroll up and down. Not available in win9X/WinME platforms.

Commands

The command list is identical to the serial port, with one exception: the *download* command. Let's see first some correct examples with that command.

```
prompt > download path1/file1 tmp/file2  
prompt > download file1 flash/file2  
prompt > download path1/file1 file2  
prompt > download file2
```

First of all, there are two types of memory in the radio. The temporary (tmp) which corresponds to the RAM memory (data are lost every time you reboot the radio), and the flash memory (flash) which corresponds to the hard disc. The first argument is the source file (i.e. the file that is stored locally on the PC), while the second argument is the destination file, i.e. the filename with which it will be saved on the radio memory (either flash or tmp). In no memory prefix is specified, then flash will be used as the default option. Therefore the following commands are identical:

```
prompt > down file1 flash/file1  
prompt > down file1 file1  
prompt > down file1
```

Note that destination and source filenames can be the same, even though is not required. Also you don't have to write the whole command "download" but instead use its abbreviation "down", and if the destination file is not specified then it is assumed to be the same with the source file. Finally, the extension .bin can be omitted in the source file. Example:

```
prompt > down c:\path1\path2\file1.bin flash/file2   can be replaced by  
prompt > down c:\path1\path2\file1 flash/file2
```

If both file1 and file1.bin exist, file1 has priority over file1.bin

Screenshots

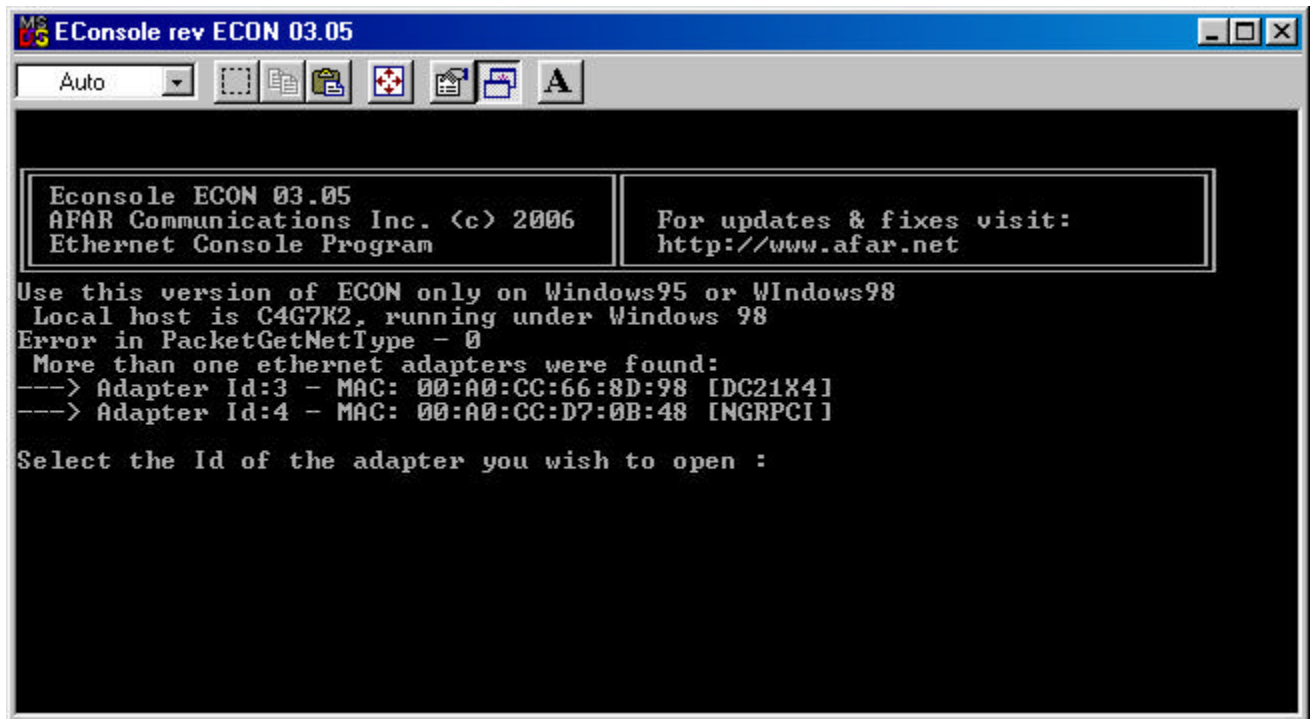


Figure 1. If you have more than one network adapters you should pick up one. Make sure that the radios you are trying to connect to are in the same network segment.

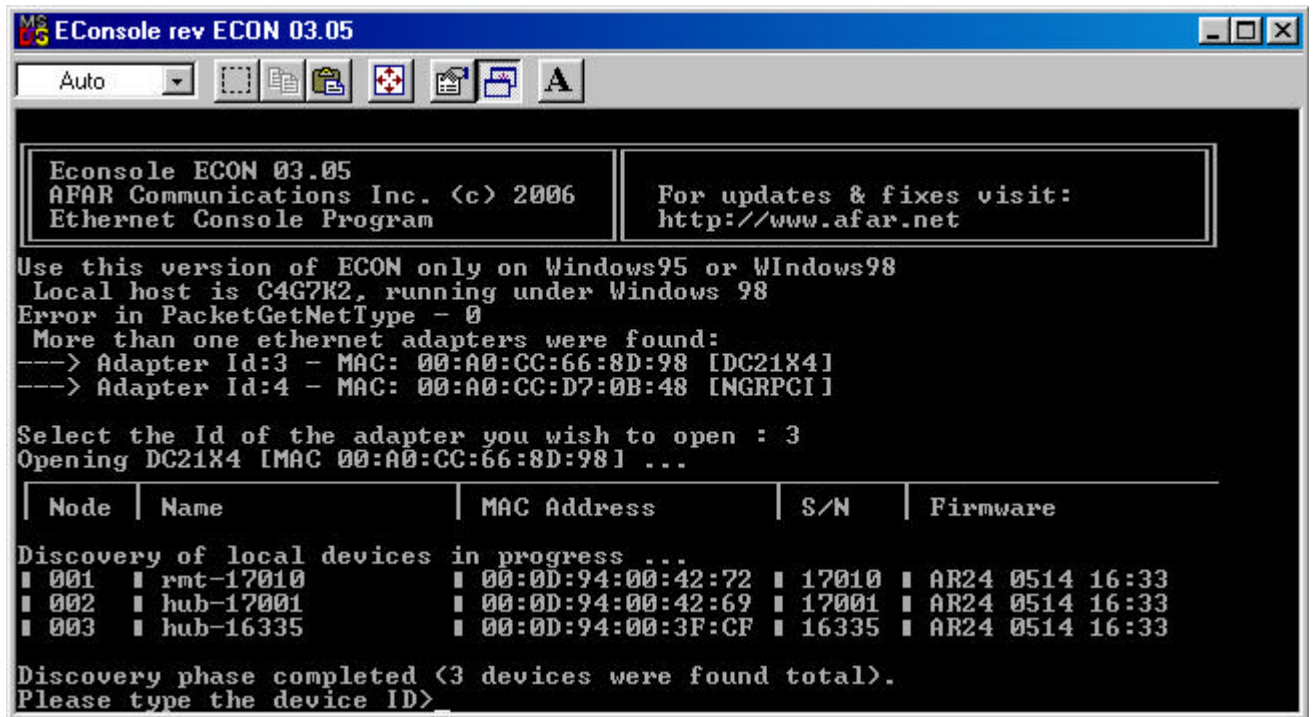


Figure 2. After you select the adapter, you will be asked to select a radio by typing its ID which can be found in the first column.

The screenshot shows the EConsole application window with the title bar 'EConsole rev ECON 03.05'. The main text area displays the following information:

```

Local host is C4G7K2, running under Windows 98
Error in PacketGetNetType - 0
More than one ethernet adapters were found:
----> Adapter Id:3 - MAC: 00:A0:CC:66:8D:98 [DC21X4]
----> Adapter Id:4 - MAC: 00:A0:CC:D7:0B:48 [NGRPC1]

Select the Id of the adapter you wish to open : 3
Opening DC21X4 [MAC 00:A0:CC:66:8D:98] ...

```

Node	Name	MAC Address	S/N	Firmware
Discovery of local devices in progress ...				
001	rmt-17010	00:0D:94:00:42:72	17010	AR24 0514 16:33
002	hub-17001	00:0D:94:00:42:69	17001	AR24 0514 16:33
003	hub-16335	00:0D:94:00:3F:CF	16335	AR24 0514 16:33

```

Discovery phase completed (3 devices were found total).
Please type the device ID>1
Connection with device [1] established successfully. Press F1 for help

AR24027-PMP by AFAR Communications, Inc
Hardware Type: 2423 Serial Number: 000D-9400-4272 (17010)
Software Version: 0.00 (Development Version) built May 14 2007 16:33:58

rmt-17010 #>

```

Figure 3. Once you select the radio you are ready to go. You can press F1 to get help/available options.

Troubleshooting & Updates

Common problems

1. Failed to open adapter

This usually happens when you haven't installed properly the WinPCap library, or you have an older version of it. *This is particularly possible if you are using Win2000, or WinXP with a WinPCap version 2.2 or older.* It is also recommended to restart your machine every time you install/uninstall WinPCap. Please visit <http://netgroup-serv.polito.it/winpcap/> to get the latest version.

You should also make sure that your Ethernet adapters are working properly, i.e. you don't get any exclamation marks or question marks when you are examining the status of your network adapters through the System Utility of the Control Panel. Sometimes, the adapters are misconfigured, or you have an extra network adapter which even though is not used, is causing WinPCap to fail. If that's the case, you should remove all malfunctioning network adapters, uninstall WinPCap and re-install it again.

2. Cannot find radio(s) even though they are running properly

Make sure that:

- The ethernet cables are OK
- You are getting connected to the right network segment (i.e. try all ethernet adapters)

- You are using the right MAC address. The system tries to identify the adapter physical address through some NetBIOS calls in the Win9X case, or some NDIS queries in the WinNT/Win2000 case. If NetBIOS is not installed, the econ will probably use the wrong local host MAC address. Also if there are more than one Ethernet adapter installed with the same name, this might cause problem in the WinNT case.

Resolution: Use the command line argument to specify the correct physical local address. You can see all the local physical address by executing the *ipconfig -all* command. Example:

>econ -m 00:78:24:22:BA:4F

3. Find a radio but not getting connected

Check if the maximum number of sessions has been reached. The maximum number of sessions on the server side is limited to four, therefore you should NOT connect to the same radio multiple times if not absolutely necessary. When the number of sessions reaches the limit the radio will ignore any new discovery messages.

Another reason might be a unreliable RF link causing a high packet loss. Since during the discovery phase there isn't any retransmission mechanism, it is quite possible that you managed to "see" the radio, but you weren't able to connect to it, because the connection request packet was lost. In such case, try to connect again.

4. High drop rate - screen freezes momentarily - connection times out

There are two possible causes.

The link between the client (PC) and the server (radio) is very weak. If the packet drop rate is more than 20%, then the connection is problematic.

There are multiple sessions opened on the same server. With many concurrent sessions the server response may be noticeably slower. Always close the session gracefully by executing the *logout* radio command, and not by closing the MS-DOS console. If the *logout* command is not issued the session at the server will remain open for an additional 15 minutes. Use the *list long* command to find out the number of open sessions.

5. If I leave the client inactive for half an hour, and try to type a new command, I get an unable to transfer packet message or I get a "session timeout - application will be closed" message.

An open session times out after 15 minutes of inactivity on the server side, and 30 min on the client side (there is a reason for this asymmetry).

Known limitations

- You cannot have more than 3 concurrent sessions on a single radio. Therefore, if you connect to the radio through a Telnet client, you can have only two concurrent sessions on the same radio (1 telnet + 2 econ = 3 sessions total). If you are unable to connect to a radio, even though you believe that is up and running, make sure you haven't exceed the max number of concurrent sessions.

- Under Win9x (Win95, Win98, WinME), if you have two or more Ethernet cards installed on your machine, then they **must** have different device names.

Econsole ECON 02.01 UC Wireless, Wi-LAN Inc. (c) 2001 VIP 110-24 Ethernet Console Program	For updates & fixes visit: http://www.ucwireless.com
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Local host is DIMITRIOS, running under Windows 98 SE
Opening NGRPC [MAC 00:A0:CC:D7:06:6A] ...
Allocating minimum memory ... **Device Name**

Report a bug & Updates

Please visit <http://www.afar-inc.com/> for more info.

Acknowledgments

The WinPCap library was obtained from “Politecnico di Torino” and the code is distributed in binary form as part of the Econsole. The following copyright notice applies to that library.

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